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Customer No.: 31561
Application No.: 10/707,084
Docket No.: 10722-US-PA

REMARKS**Present Status of the Application**

Applicants would like to thank the Examiner for considering claims 6-9, 13 and 18-20 as allowable if written in independent form including all of the limitations of the base claim and any intervening claims. The Office Action, however, rejected claims 1-5, 10-12, 14-18 and 21 under 35 USC §103(a) as being unpatentable over Onishi (U.S. Application No. 2003/0146444) in view of Ando (U.S. Patent No. 6,429,467) and Ishikawa et al. (U.S. Patent No. 5,977,565). In addition, claims 6-9, 13 and 18-20. Applicant respectfully submits that the currently pending claims are already in condition for allowance. Reconsideration and allowance of those claims are courteously requested.

Discussion of the Rejections of the Office Action**Response to Claims Rejections under 35 USC §103**

Claims 1-5, 10-12, 14-18 and 21 are rejected under 35 USC §103(a) as being unpatentable over Onishi in view of Ando and Ishikawa.

For a proper rejection of a claim under 35 U.S.C. section 103, the cited combination of references must disclose, teach or suggest all elements/features/steps of the claim.

Independent claims 1 and 11 states:

Claim 1. An UV photodetector, comprising:
a substrate;

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a GaN-based semiconductor layer, disposed on the substrate, wherein the GaN-based semiconductor layer comprises a first protrusion portion;

a high-resistivity GaN-based interlayer, disposed on the first protrusion portion of the GaN-based semiconductor layer, and a material of the GaN-based interlayer comprising $\text{Al}_x\text{In}_y\text{Ga}_{1-x-y}\text{N}$, wherein $x \geq 0$, $y \geq 0$, $1 \geq x + y$;

a first electrode, disposed on the GaN-based interlayer; and

a second electrode disposed on a portion of the GaN-based semiconductor layer except for the first protrusion portion.

Claim 11. An UV photodetector, comprising:

a substrate;

a GaN-based semiconductor layer, disposed on the substrate;

a high-resistivity GaN-based interlayer, disposed on the GaN-based semiconductor layer, and a material of the GaN-based interlayer comprises $\text{Al}_x\text{In}_y\text{Ga}_{1-x-y}\text{N}$, wherein $x \geq 0$, $y \geq 0$, $1 \geq x + y$; and

a patterned electrode layer disposed on the GaN-based interlayer.

Independent claims 1 and 11 are allowable for at least the following reasons.

(1) Onishi, Ando and Ishikawa do not disclose, teach or suggest "UV detector" as disclosed in claims 1 and 11 of the application. The whole patent of Ando disclosed a field effect transistor (FET). FIG. 19 of Onishi, as recited in the Office Action, discloses a semiconductor laser device (referring to [0330] and [0331] of Onishi). The whole patent of Ishikawa, and FIG. 5 thereof as recited in the Office Action, discloses a light emitting diode (LED). It is obvious that the laser device of Onishi and the LED of Ishikawa are light emitting device, but not light (UV) detecting device (detector), in addition, Ishikawa does not disclose that the FET can be a UV detector. Accordingly, Onishi, Ando and Ishikawa are not analogous to claims 1 and 11 of the application.

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(2) Ando discloses a FET requiring a gate 19, a source 17S and a drain 17D (as shown in FIG. 2A of Ando). However, the structure of Onishi (as shown in FIG. 19) or that of Ishikawa (as shown in FIG. 5) does not need/have gate and source/drain. Therefore, the structure of Ando is different from and can't be adapted for that of Onishi and Ishikawa. Accordingly, there is no motivation and teaching for combining Ando with Onishi and Ishikawa. In addition, claims 1 and 11 of the application do not need/have gate and source/drain, and thus is different from Ando.

(3) Onishi and Ishikawa do not disclose, teach or suggest "GaN-based interlayer comprising $\text{Al}_x\text{In}_y\text{Ga}_{1-x-y}\text{N}$ " of claims 1 and 11. Furthermore, Onishi does not disclose, teach or suggest any "GaN-based layer" such as "GaN-based semiconductor layer" and "GaN-based interlayer", and the electrodes of claims 1 and 11.

Thus, Onishi, Ando and Ishikawa do not make claims 1 and 11 obvious. The withdrawal of the rejection and the allowance of claims 1 and 11 are therefore earnestly solicited.

If independent claims 1 and 11 are allowable over the prior art of record, then its dependent claims 2-10 and 12-21 are allowable as a matter of law, because these dependent claims contain all features/elements/steps of its respective independent claims 1 and 11.

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CONCLUSION

For at least the foregoing reasons, it is believed that all pending claims 1-21 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,

Date :

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